

REMARKS

Claims 1-3 and 5-14 are pending in this application.

I. Rejection under 35 U.S.C. §102(a)/(e) or 35 U.S.C. §103(a)

Claims 1, 5, and 10-13 were rejected as allegedly being anticipated under 35 U.S.C. §102(a)/(e), or in the alternative, allegedly being unpatentable under 35 U.S.C. §103(a) over U.S. Patent No. 6,617,273 (Motoki). Applicants respectfully traverse this rejection.

Motoki does not teach or suggest ceramic compositions as made by a method including calcining a main component material, a subcomponent material and a glass material together in one step as recited in the present claims. In fact, on page 2 of the Office Action, the Patent Office acknowledges that Motoki fails to teach collectively calcining the main component, first subcomponent and glass.

Further, Motoki teaches away from simultaneously calcining the main component material, the subcomponent material and the glass component material as recited in the present claims. Specifically, Motoki teaches that the process of simultaneously calcining manganese dioxide (MnO_2) and silicon dioxide (SiO_2) is not desired because a mixed crystal system is produced which reduces the reliability of the devices of Motoki. See column 1, lines 45-65 of Motoki.

Thus, because Motoki teaches away from simultaneous calcining, one of ordinary skill in the art would not have been motivated to modify the teaching of Motoki for simultaneously calcining the main component material, the subcomponent material and the glass component material as required by the present claims.

The dielectric ceramic composition of Motoki, as made by the different process described therein, is different from the dielectric ceramic composition of the present claims and does not teach or suggest the dielectric ceramic composition of the present claims.

Moreover, the dielectric ceramic composition according to the present claims is superior to

the dielectric material of Motoki. Samples 70 to 72 in Table 11 are example dielectric ceramic compositions according the present claims because they are made by the solid phase collective calcining process. Samples 74-76 in Table 12, on the other hand, are representative of the dielectric materials according to the disclosure of Motoki because examples 74-76 were produced by a process where secondary materials were added to calcined primary materials as in Motoki. Tables 11 and 12 clearly show that samples 70-72 (representative of the present claims) are superior in permittivity, insulation resistance, and $\tan \delta$ at 20 Hz and 140°C (dielectric loss) to samples 74-76 (representative of liquid phase method of Motoki). It was also confirmed that the solid-phase method resulted in improving temperature dependency by $\tan \delta$ compared to the liquid phase method. See Figures 4A and 4B of the specification.

The Patent Office further alleged that "Applicants have not shown by way of tangible evidence that the products of Motoki et al have dielectric losses and/or shrinkage curves different than the instant invention and that the present claims reflect those differences." Applicants disagree.

The Patent Office has set an incorrect burden on the Applicants to amend the claims to incorporate specific values of dielectric losses and/or shrinkage values. It is only necessary for the Applicant to provide evidence establishing an unobvious difference in the claimed product and the prior art product. See MPEP §2113 citing *In re Marosi*, 710 F.2d 798, 802. Applicants submit that Tables 11 and 12 demonstrate the differences between the products recited in claim 1 and the products disclosed in Motoki.

Claim 1 recites that the dielectric ceramic composition is produced by obtaining a calcined substance by collectively calcining at least a main component material, which becomes said main component, a first subcomponent material, which becomes first subcomponent, and a glass material, which becomes said glass component. As discussed more fully above, the collective calcining recited in the present claims imparts features of

superior permittivity, insulation resistance and dielectric loss ($\tan \delta$) as demonstrated in Tables 11 and 12. Thus, Applicants have met their burden of presenting evidence of an unobvious difference between the product recited in the present claims and the product taught by Motoki.

For at least the foregoing reasons, Motoki does not teach or suggest the features recited in claims 1, 5 and 10-13. Reconsideration and withdrawal of the rejection are thus respectfully requested.

II. Rejection under 35 U.S.C. §103(a)

Claims 1-3 and 5-14 were rejected as allegedly being unpatentable over U.S. Patent No. 6,118,648 (Kojima) in view of U.S. Patent No. 6,617,273 (Motoki). Applicants respectfully traverse this rejection.

The Patent Office alleged that the samples of the disclosure are not representative of the article taught by Motoki. Applicants disagree. The formula of sample 3 of the specification was used to make samples 70-72 and 74-76. The general formula for the product of Motoki is $(\text{Ca}_{1-v-w}\text{Sr}_v\text{Ba}_w)_k(\text{Zr}_{1-x-y}\text{Ti}_x\text{Hf}_y)\text{O}_3$. See column 4, line 26 of Motoki. As the table below illustrates, samples 70-72 (produced by the collective calcining method of the present claims) and 74-76 (produced by the method of Motoki) method are representative of the article taught by Motoki in that they conform to the general formula of the product. Motoki discloses no other requirement on the amounts of Ca, Sr, and Ba other than that they sum to 1.

	Ca	Sr	Zr	Ti	Hf
Specification Samples 70-72 and 74-76 (as based on Sample 3)	0.7	0.3	0.9	0.05	0.05
Motoki Samples 11-14	0.87	0.05	0.93	0.02	0.02
Motoki Samples 15-18	0.67	0.04	0.95	0.01	0.01

Contrary to the Patent Office's allegations, one of ordinary skill in the art would have had no reason to have combined the Hf of Motoki with Kojima. Motoki nowhere teaches or suggests that it is well known to add Hf. Motoki merely teaches the presence of Hf, but does not identify any benefit from its inclusion. In Motoki, any change in Hf levels, for example samples 11-15 in Table 1 and samples 47-49 in Table 3, was always accompanied by a change in Ca. In the very least, Motoki merely teaches that Hf and Ca are linked, and that in the product of Motoki, Hf may be included. Thus, one of ordinary skill in the art would not have incorporated Hf from Motoki into the product of Kojima as alleged by the Patent Office.

Further, as explained above, Motoki specifically teaches away from simultaneously calcining the main component and subcomponent. Motoki teaches that simultaneous calcining produces a mixed crystal system which reduces the reliability of the devices. See column 1, lines 45-65 of Motoki. Therefore, one of ordinary skill in the art would not have been led to have combined Motoki with Kojima for this reason.

Moreover, the product of the present claims produces unexpected results when compared to the product of Motoki. Specifically, the collective calcining process produces better permittivity, insulation resistance and $\tan \delta$ at 20Hz and 140°C. The compositions of samples 70-72 and samples 74-76 are identical. The only difference between samples 70-72

of Table 11 and samples 74-76 in Table 12 was the production method. That is, samples 70-72 were made by the collective calcining process recited in the current claims and samples 74-76 were made by the process disclosed by Motoki. Table 11 as compared to Table 12 and Figure 4A compared to Figure 4B demonstrate the superior performance of the product of the current claims over the product of Motoki.

For at least the foregoing reasons, Kojima and Motoki, in combination or alone, do not teach or suggest all of the features recited in claims 1-3 and 5-14. Reconsideration and withdrawal of the rejection are thus respectfully requested.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-3 and 5-14 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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